



IFAD

INTERNATION FUND FOR AGRICULTUR

ACIAR Project SMCN/2014-089

Improving soil health, agricultural productivity and food security on atolls

Context

Siosiua Halavatau Crop Production and Extension Adviser, SPC LRD (Former)







Kiribati, Tuvalu and RMI are mostly low-lying atolls and vulnerable

High Vulnerability

- CC & sea level rise
- Biodiversity loss
- Natural disasters
- Dependent on fossil fuel
- Isolation
- **Smallness**
- Waste disposal
- Poor quality H20
- Competition between land use options

Low Adaptive Capacity

- Weak Technical
- Limited Financial
- Limited Institutional capacity
- Data issue

Commitments

- Food and nutrition security
- CSA
- Agriculture and soil health



Food Production Challenge on Atolls

FACTORS

- narrow genetic base;
- poor control of pests and diseases;
- poor soil conditions;
- limited water availability;
- climate change impacts, and;
- fading traditional knowledge





Researchable Questions

1) What soil constraints and pests are limiting food production?

2) Which varieties of starchy staples and nutritious crops (introduced and indigenous) are adaptable to atoll harsh conditions

3) How can soil health be improved with the resources available in the atolls and will improved soil health increase starchy crop productivity?

4) What local nutritious foods are available to be grown in small gardens, and what are the barriers to adoption?

5) How can surplus starchy staple crops and vegetables produced in the outer islands be exported to the urban centres in the main islands.

The project objectives are to:

 Increase the sustainability and productivity of starchy staple food production systems;
Increase household and community production and consumption of local nutritious foods, and;
Identify and develop opportunities for inter-island trade in high-value crops and products.

Project Sites





Objective 1: Increase the sustainability and productivity of largescale and productivity of largescale and production systems

No.	Activity	Year 1			Year 2			Year 3				Year 4					
1.1	Collection and evaluation of genetic materials - staples/nutritious foods – setting up Tanaea station																
1.2	Evaluation of materials in the outer islands in the actual farming systems																
1.3	Multiplication of planting materials																
1.4	Strategic food reserve (babai pit food production)																
1.5	Compost making and research																
	Soil management research																
	Water research																
	Pests and diseases research																
1.6	Training in PRA and on-farm trial design																
	Training in extension skills and facilitation																
	Training in nursery management																
	Training in the production of staple crops																
	Training in compost production																
	Training in seed production																

Objective 2: Increase household and community production of local nutritious foods.



No.	Activity	Year 1	Year 2	Year 3	Year 4			
2.1	Evaluation of indigenous and							
	introduced vegetables							
	Evaluation of production systems							
	Soil management research							
	Water research							
	Pests and diseases research							
2.2	Training in production of nutritious							
	foods							
	Training on nutrition – handling,							
	cooking and preserving locally							
	produced foods							
2.3	Media campaign on awareness							
	raising for nutritious foods							
2.4	Setting up village market centres							

Objective 3: Identify and develop opportunities for the formunate island trade in high-value crops and products

No.	Activity	Year 1		Year 2				Year 3				Year 4				
3.1	Value chain analysis															
3.2	Value chain support fund															
3.3	Export collection centres															
3.4	Quality standards															
3.5	Training on post-harvest of commercial crops															
	Training on marketing and agribusiness															
3.6	Livelihood analysis															

Key HighlightS/Lessons Learnt



- Cultivars of root crops best suited for some of the outer islands were selected from locally available materials. Sweet potato varieties with local name PNG and PRAP yielded the highest. The taro cultivars all performed well. Both cassava cultivars collected from Banaba and Butaritari can grow well if sufficient compost is applied.
- Applying compost to a trench or planting holes 30 to 40cm deep and planted with root crops or vegetables produced better yields than applying to mounds.
- Pot trials and on-farm trials show that applying 15% compost (1 shovel per planting hole) and 25% compost (2 shovels per planting hole) produce the best results for vegetables and root crops.
- Best bet targeted compost recipes have been developed to address limitations of atoll soils and a factsheet is available.
- Improved low maintenance/cost irrigation systems developed
- Provision and training on soil test kits e.g. Solvita and Palin and full stop
- Development of Solar drier system for soil/plant samples

Key HighlightS/Lessons LearnT Cont'd.



- Nutritious crops like te mota (wild Amaranthus), chaya (Cnidoscolus aconitifolius), drumstick (Moringa oleifera), hedge panax (Polyscias scutellaria), ofega (Pseuderanthemum whartonianum; P. carruthersii), beach cowpea (Vigna marina), kangkong (Ipomoea aquatica, Ipomoea reptans), Cucurbits (pumpkin and choko), bele (Abelmoschos manihot), chilli (Capsicum spp), and purslane (Portulaca oleracea) have been promoted in the food production systems with some success. Factsheets of these have been developed and are available in prints and pdf copies.
- Babai pits as a source of foods for households have been successfully modified in three of the four outer islands in Kiribati.
- Value chain analyses of some crops from Abaiang to South Tarawa had been completed – with a new facility established in partnership with IFAD
- An Abaiang Production Plan and Participatory Guarantee System for Root, Fruit and Vegetable Growers has been developed to guide the value chain component of the project.
- Marketing of produce grown in Abaiang has started in Tarawa in partnership with AAIS
- Atoll Soil Health Conference involving KR, TV, RMI, Fiji & Tonga
- Pests and Disease WhatsApp Group Supporting quick diagnosis and advise

Challenges



- Staff turn over within SPC has caused significant challenges in catching up with progress and finance
- Staff turnover in the target countries 3 times in each country also caused delayed
- Transportation and flights in countries linked to connectivity
- Internet connectivity in countries
- Capacity constraints in countries
- Finding uniform field sites
- Improved trial protocols
- Drought in 2016 2018 affected some of the outer-island trials



• COVID19 (+/-)

Sustainability

- Beyond the Project
 - DFAT food futures
 - IFAD Phase 2 to scale results to additional 4 outerislands
 - The new IFAD GFSP has reached out to project team to incorporate results in the new programme design
 - Change of perceptions on eating habits through mass awareness and community engagements
 - Babai food garden diversification involving communities/households contribute to long term food and nutrition security, environment and resilient communities (CC)
 - Adoption of targeted compost by various communities
 - Factsheets being translated and adopted by project partners (IFAD) and communities





Importance of Partnerships



- International ACIAR, UTAS, UoA, IFAD, FAO, DFAT
- Regional SPC
- National
 - ✓ KR MELAD, Island Councils, AAIS, Health, Education, Faith based, NGOs
 - ✓ Tuvalu MNR, Island Council, Health, Education, NGOs

Thank You